

WHAT IS CLAIMED IS:

1. A motor control device for a multi-phase motor, comprising:
a drive circuit for driving said multi-phase motor; and
a micro-controller for controlling said drive circuit;
wherein said micro-controller limits a motor current in accordance with an integrated value of a predetermined function of a phase current.
2. The motor control device as claimed in claim 1, wherein said micro-controller limits a peak value of the phase current in accordance with an integrated value of a predetermined function of a phase current.
3. The motor control device as claimed in claim 1, wherein said micro-controller limits the motor current in accordance with a maximum value of the given functional integrated values of the respective phase currents.
4. The motor control device as claimed in claim 1, wherein said micro-controller limits a d-axis current in accordance with an integrated value of a predetermined function of a phase current.
5. The motor control device as claimed in claim 1, wherein said micro-controller limits a q-axis current in accordance with an integrated value of a predetermined function of a phase current.
6. The motor control device as claimed in claim 3, wherein said micro-controller

limits a current obtained by vector-synthesizing a d-axial current and a q-axial current in accordance with an integrated value of a predetermined function of a phase current.

7. The motor control device as claimed in claim 4, wherein said micro-controller does not change a phase angle formed by the q-axis and the current obtained by vector-synthesizing the d-axial current and the q-axial current before and after the motor current is limited.

8. The motor control device as claimed in claim 4, wherein said micro-controller changes the phase angle formed by the q-axis and the current obtained by vector-synthesizing the d-axial current and the q-axial current before and after the motor current is limited.

9. The motor control device as claimed in claim 8, wherein, after the motor current is limited, said micro-controller changes the phase angle formed by the q-axis and the current obtained by vector-synthesizing the d-axial current and the q-axial current so as to allow the d-axial current to flow in priority as compared with the state in which the motor current is not limited yet.

10. The motor control device as claimed in claim 8, wherein, after the motor current is limited, said micro-controller changes the phase angle formed by the q-axis and the current obtained by vector-synthesizing the d-axial current and the q-axial current so as to allow the q-axial current to flow in priority as compared with the state in which the motor current is not limited yet.

11. The motor control device as claimed in claim 1, wherein said micro-controller limits the motor current in accordance with an integrated value of a power function of the phase current.

12. The motor control device as claimed in claim 1, wherein said micro-controller limits the motor current in accordance with the integrated value of a deviation between the phase current and a predetermined threshold value.

13. The motor control device as claimed in claim 1, wherein said micro-controller limits the motor current in accordance with the integrated value of a deviation between the power function of the phase current and a predetermined threshold value.

14. The motor control device as claimed in claim 1, wherein said micro-controller limits the motor current in accordance with an integrated value of the power function of a deviation between the phase current and a predetermined threshold value.

15. The motor control device as claimed in claim 11, wherein said micro-controller calculates the power function through polynomial approximation.

16. The motor control device as claimed in claim 11, wherein said micro-controller calculates the power function with reference to a table.

17. The motor control device as claimed in claim 1, wherein said micro-controller independently conducts the calculation in accordance with the phase current flowing

direction.

18. The motor control device as claimed in claim 1, wherein said micro-controller conducts the calculation in accordance with an absolute value of the phase current.

19. The motor control device as claimed in claim 1, wherein said micro-controller conducts the calculation in accordance with a detected value of the phase current.

20. The motor control device as claimed in claim 1, wherein said micro-controller conducts the calculation in accordance with a target value of the phase current.